

Valletta, Malta, 5 September 2012

Ministry of Foreign Affairs
Directorate of Energy and
Climate Change

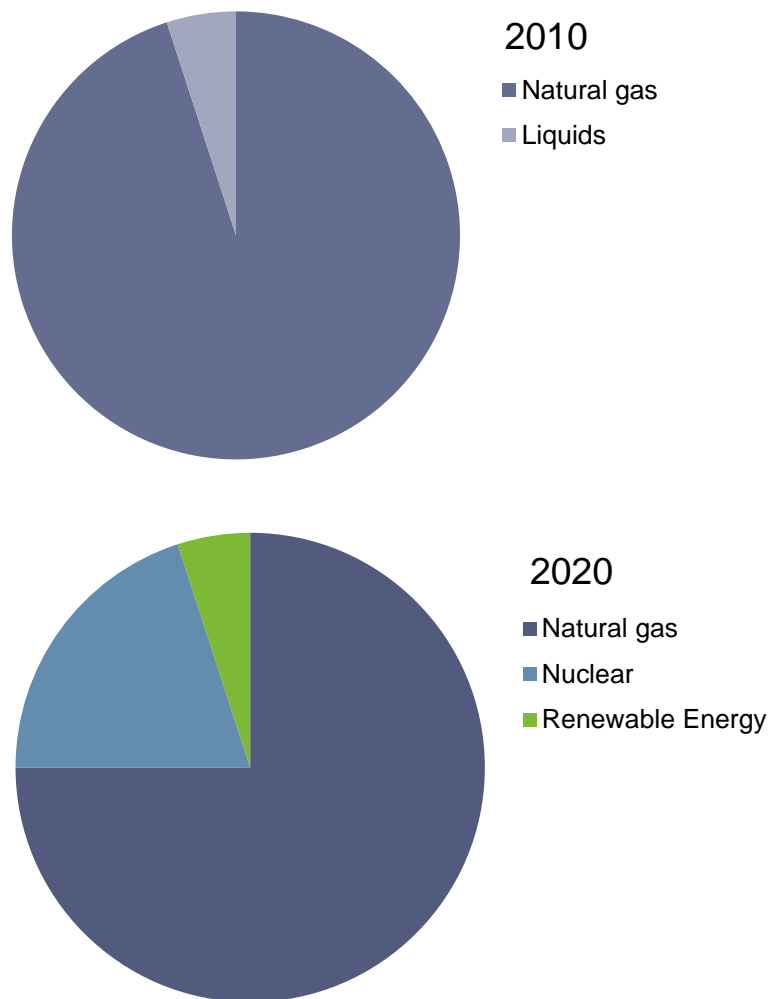


UAE energy outlook

Factors for global renewable energy roadmaps



UAE energy profile: present and future



Energy Context

- Rapidly growing economy
- Population surge – 2.4 million people in 1995; over 7 million in 2011
- Extreme climate – summer temperatures over 50°C; air-conditioning = necessity
- Water scarcity – almost all drinking water desalinated
- Energy-intensive industries – but economically logical location
- Commitment to decarbonization and diversification of the energy sector

Leadership support for renewable energy

- Abu Dhabi and Dubai governments have backed renewable energy despite higher costs currently
- Renewable energy represents a keystone of the UAE strategy to:
 - Build new industries and reduce dependence on fossil fuel revenues
 - Ensure long-term role in the global energy market
 - Enable “green growth”
 - Decarbonize, especially the power sector
 - Engage with leading international partners, e.g., through IRENA
- Support for additional renewable energy linked to competitiveness with other fuel types



HH Sheikh Mohammed Bin Zayed Al-Nahyan, Crown Prince of Abu Dhabi, with Dr. Sultan Al Jaber, CEO of Masdar and UAE Special Envoy for Energy and Climate Change at Masdar City

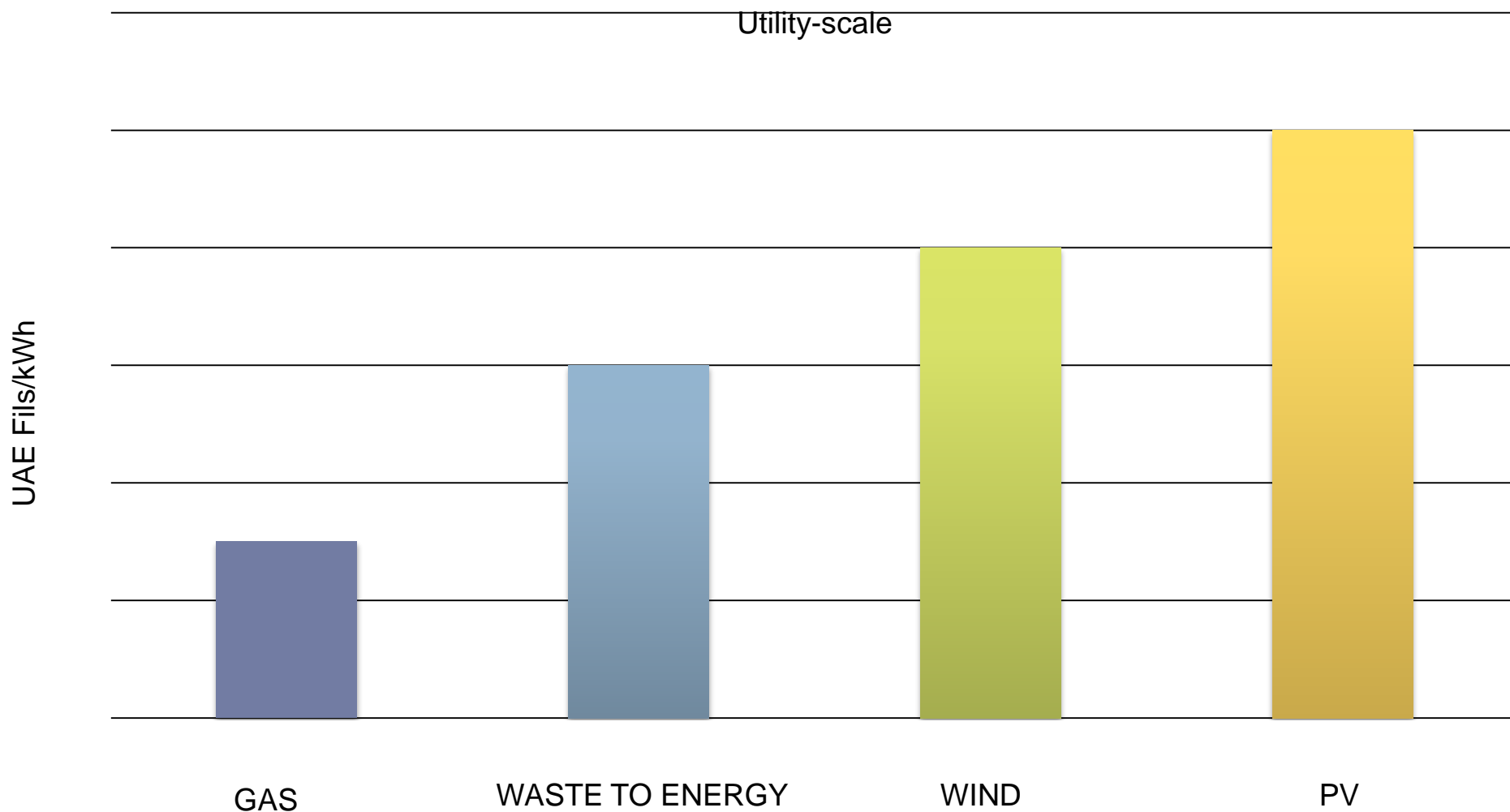
Renewable energy in the UAE power sector



Shams 1 project (100 MW of CSP)
To be commissioned in 2012

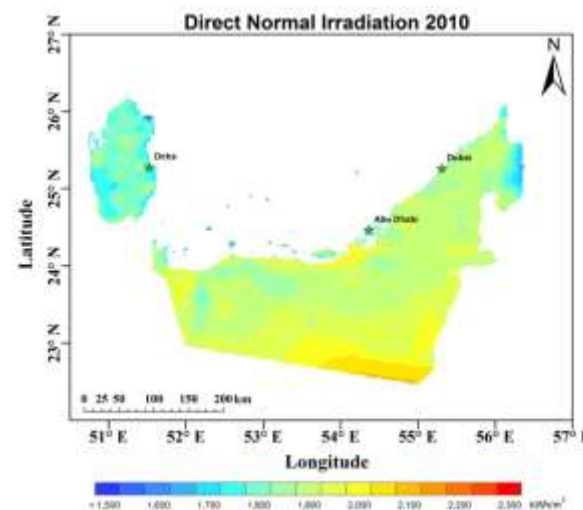
- Abu Dhabi: target of 7% renewable energy electric generation capacity by 2020 (1500 MW)
- Dubai: target of 5% renewable energy by 2030 (1000 MW)
- Emirate-level governments are creating policy/incentive framework to deliver targets
- Projects already progressing
 - 100 MW CSP plant under construction
 - 100 MW PV plant approved
 - 28.8 MW wind plant approved
 - 100 MW waste-to-energy plant announced
- Abu Dhabi major investor in projects abroad: London Array, Gemasolar,
- Offer grants and concessional finance :
 - IRENA – \$350million
 - Seychelles, Tonga, Afghanistan

Estimated renewable energy costs in the UAE



Energy data availability

- Federal data collection is in its beginning
 - Most robust data on consumption, supply, and cost in electricity and transportation markets comes from Abu Dhabi and Dubai, especially in last five years
 - Limited information about RE
 - No traditional roadmaps
- Key federal initiative: renewable energy resource assessment and mapping (Center)
 - Led by Dr. Hosni Ghedira at Masdar Institute, with federal and emirate support
 - Identifies most promising (i.e., cost-effective) locations for solar and wind
 - Accounts for significant impacts of dust, humidity, and heat on resource quality – customization of methodologies for local climate
 - Will release data via IRENA global atlas



Key factors in determining the future UAE energy mix (and for roadmaps to integrate)

- 1 Cost of natural gas and its alternatives
- 2 Opportunity costs of not exporting hydrocarbons

Competitiveness is the single most important driver of future renewable energy

UAE: cost of natural gas is the benchmark to beat



- New renewable energy projects will be compared to gas-fired generation on a cost basis – also possibly options for additional nuclear
- The cost of natural gas in the UAE is changing
 - New production in the UAE would require removal of sulfur – driving up costs
 - Dubai buys LNG off the spot market
- Cost of renewable energy in the UAE is also decreasing: cheaper imports, better project implementation capability, **better resource assessment**
- Roadmaps will therefore need to play close attention to the gas/renewable comparison

Potential to export hydrocarbons influences the competitiveness discussion

- Every unit of oil and gas consumed in the UAE represents lost revenue from exports
- With oil prices frequently over \$100/barrel and LNG prices frequently over \$10/MMBtu, domestic consumption represents a substantial loss
- Therefore, even with nuclear power, there can be a strong business case for renewable energy
- We are in the early stages of trying to establish this factor as a formalized, quantitative part of government energy planning



The role of international exchange and roadmaps

- Increased global dialogue on the cost and benefits of renewable energy is an essential first step
 - especially for developing countries with high financial sensitivity and urgent energy needs
- Messaging should be clear, constant, and convincing: there is a business case for renewable energy
- Roadmaps can be highly useful tools for countries like the UAE if they:
 - explicitly demonstrate and explain renewable energy competitiveness vs. other fuel options
 - Account for local cost factors
 - Involve utilities (who often decide what fuels to use)
 - Are eventually linked to resource atlases, providing concrete implementation/location ideas



HH Sheikh Mohammed Bin Rashid Al-Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai, with IRENA DG Adnan Amin

UAE support for renewable energy on islands



HH Sheikh Abdullah Al Nahyan, UAE Foreign Minister, visits HRH Prince 'Ulukalala and 'Akau'ola in Tonga

- UAE views islands as high-potential deployment opportunities for renewable energy
 - RE costs approaching parity with diesel imports
- UAE is fully sponsoring two projects (on grant basis) to demonstrate feasibility and value, as well as grow local markets and awareness
 - Seychelles – 6 MW wind
 - Tonga – 500 kW solar
- UAE also believes islands are primed to prove the business case for renewable energy and has established two supportive concessional loan facilities
 - \$50m fund specifically for Pacific Islands
 - \$350m fund for all IRENA developing countries
- Role for IRENA and roadmaps: demonstrate and publicize renewable energy's cost competitiveness to lenders, governments, and utilities

